

GenCore version 5.1.1.3
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OM nucleic - nucleic search, using sw model

Run on: February 16, 2003, 15:49:44 ; Search time 203.076 Seconds
(without alignments)
14704.597 Million cell updates/sec

Title: US-09-497-967-1
Perfect score: 1326
Sequence: 1 atgaataataattttatt.....ttattttttttattttg 1326

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 2185239 seqs, 1125999159 residues

Total number of hits satisfying chosen parameters: 4370478

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :				N_Geneseq_101002.*			
1:	/SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1980.DAT.*						
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23:	/SIDS2/gcgdata/geneseq/geneseqn-emb1/NA2001B.DAT.*						
24:	/SIDS2/gcgdata/geneseq/geneseqn-emb1/NA2002.DAT.*						

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	1326	100.0	1326	21	AAA97036
2	1326	100.0	2486	21	AAA97037
3	1324.4	99.9	1326	21	AAA52135
4	1323.4	99.8	2811	21	AAA52134
5	254.2	19.2	1404	21	AAA52136
6	252.6	19.0	1404	21	AAA97038
7	252.6	19.0	1410	21	AAA97060
8	100	7.5	100	21	AAA97039
9	99	7.5	119	21	AAA97070

10	99	7.5	162	21	AAA97069	I-antigen encoding
11	99	7.5	199	21	AAA97068	48kd i-antigen RAC
12	99	7.5	202	21	AAA97067	48kd i-antigen gen
13	72.2	5.4	1635	22	ABA49946	Human breast cell
14	72.2	5.4	1635	22	ABA67865	Human foetal liver
15	72.2	5.4	1635	22	ABA34921	Probe #13387 for g
16	72.2	5.4	1635	22	AAK16270	Human brain expres
17	72.2	5.4	1635	22	AAK42016	Human bone marrow
18	72.2	5.4	1635	22	AAI22780	Probe #12713 for g
19	72.2	5.4	1635	22	AAI48082	Probe #16768 used t
20	72.2	5.4	1635	22	AAI08454	Human genome-deriv
21	72.2	5.4	1635	24	ABS16047	Human breast cell
22	72.2	5.4	1973	22	ABA44805	Human foetal liver
23	72.2	5.4	1973	22	ABA55261	Probe #3471 for g
24	72.2	5.4	1973	22	ABA25005	Human brain expres
25	72.2	5.4	1973	22	AAK03514	Human bone marrow
26	72.2	5.4	1973	22	AAK28970	Probe #3489 for g
27	72.2	5.4	1973	22	AAI13556	Probe #3604 used t
28	72.2	5.4	1973	22	AAI34918	Probe #3437 used t
29	72.2	5.4	1973	22	AAI03446	Human genome-deriv
30	72.2	5.4	1973	24	ABS03504	Mouse SRY-related
31	64.6	4.9	10266	17	ABI33007	Mouse ischaemic co
32	64	4.8	2215	24	ABI99688	DNA encoding novel
33	63.6	4.8	3297	23	AA591437	55kd i-antigen syn
34	63.2	4.8	1404	21	AAA97040	Synthetic 55kd i-a
35	63.2	4.8	1404	21	AAA97065	Synthetic I. Multi
36	63.2	4.8	1410	21	AAA97089	PKS 741 Insert con
37	63	4.8	14704	13	AAQ20685	Polyglutamine trac
38	60	4.5	486	22	AA75507	Antigen tc-7a gene
39	59.8	4.5	543	13	AAO23052	Human breast cell
40	59.6	4.5	439	22	ABA49878	Human foetal liver
41	59.6	4.5	439	22	ABA67796	Probe #13320 for g
42	59.6	4.5	439	22	ABA34854	Human brain expres
43	59.6	4.5	439	22	AAK16207	Human bone marrow
44	59.6	4.5	439	22	AAK41953	Probe #12651 for g
45	59.6	4.5	439	22	AAI22718	

ALIGNMENTS

RESULT 1	
AAA97036	
ID	AAA97036 standard; DNA; 1326 BP.
XX	
AC	AAA97036;
XX	
DT	18-DEC-2000 (first entry)
XX	
DE	48kd i-antigen nucleotide sequence.
XX	
KW	Immobilisation antigen; i-antigen; Ichthyophthiriasis; vaccine; ds;
KW	white spot disease; freshwater fish; immune response; infection control.
XX	
OS	Ichthyophthirius multifiliis.
XX	
PN	WO2000046373-A1.
XX	
PD	10-AUG-2000.
XX	
PF	04-FEB-2000; 2000WO-US02962.
XX	
PR	04-FEB-1999; 99US-0118634.
PR	02-MAR-1999; 99US-012372.
PR	17-MAR-1999; 99US-0124905.
XX	27-APR-1999; 99US-0131121.
PA	(UYGE-) UNIV GEORGIA RES FOUND INC.
PA	(CORR) CORNELL RES FOUND INC.
PA	(CLAR/) CLARK T G..
PA	(DICK/) DICKERSON H W.
XX	(LINT/) LIN T.
XX	

PI	Clark TG, Dickerson HW, Lin T;	
XX	WPI; 2000-506071/45.	
DR		
XX	Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius	
PT	multifiliis, useful for prophylaxis and treatment of Ichthyophthirius	
PT	infection in fish	
XX		
PS	Claim 2; Figure 3; 144pp; English.	
XX		
XX	This invention relates to novel i-antigen polypeptide sequences.	
CC	I-antigens or immobilisation antigens are common to a variety of	
CC	hymenostomid ciliates and their expression varies in response to	
CC	environmental stimuli. This invention relates to i-antigens in	
CC	Ichthyophthirius multifiliis, a protozoan which is an obligate parasite	
CC	of freshwater fish causing ichthyophthiriasis or white spot disease. The	
CC	invention includes two polypeptide and polynucleotide sequences for two	
CC	i-antigens, of 48 and 55 kD. Also included in the invention are	
CC	antibodies capable of binding to the nucleotide sequences and a method	
CC	for identifying I. multifiliis serotypes using the nucleotide sequences.	
CC	A composition (containing the i-antigen nucleotide) capable of eliciting	
CC	an immune response in fish is useful for prophylaxis, treatment or for	
CC	controlling I. multifiliis infection in fish. Polynucleotide or protein	
CC	vaccines comprising a portion of the amplified product encoding an	
CC	antigenic i-antigen polypeptide obtained in fish. Sequences AA97036-A97042,	
CC	preventing I. multifiliis infection in fish. Sequences AA97043-A97064	
CC	and AA97065 and AA97089 represent i-antigen genes and gene	
CC	fragments identified in the invention. Sequences AA97043-A97064	
CC	(excluding AA97060) and AA97071-A97088 represent primers used in the	
CC	isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and	
CC	AAB25893-B25906 represent i-antigen protein and peptide sequences.	
XX		
SQ	Sequence 1326 BP; 371 A; 251 C; 253 G; 451 T; 0 other;	
	Query Match 100.0%; Score 1326; DB 21; Length 1326;	
	Best Local Similarity 100.0%; Pred. No. 7.1e-298;	
	Matches 1326; Conservative 0; Mismatches 0; Indels 0; Gaps 0;	
QY	1 ATGAATATATATATTTATTAATTTTAAATTTTCTTTATTTATTAATGAATTAAGAGCT	60
DB	1 ATGAATATATATATTTATTAATTTTAAATTTTCTTTATTTATTAATGAATTAAGAGCT	60
QY	61 GTTCCATGTCCTGATGCTAGCTCAAGCTGGAATGATGATGATGATGATGATGATGAT	120
DB	61 GTTCCATGTCCTGATGCTAGCTCAAGCTGGAATGATGATGATGATGATGATGATGAT	120
QY	121 CTGGTACTGCTGATGATGATGATGATGATGATGATGATGATGATGATGATGATGATG	180
DB	121 CTGGTACTGCTGATGATGATGATGATGATGATGATGATGATGATGATGATGATGATG	180
QY	181 GAAGTATATGTAATTAACCTTTCCGACCAATTAATGCTGAGAGGATATGTTACCA	240
DB	181 GAAGTATATGTAATTAACCTTTCCGACCAATTAATGCTGAGAGGATATGTTACCA	240
QY	241 TGCCAAATTAACAGAGTAGGCTGTTTACCAATGAGTGATGATGATGATGATGATGATG	300
DB	241 TGCCAAATTAACAGAGTAGGCTGTTTACCAATGAGTGATGATGATGATGATGATGATG	300
QY	301 TAATGCACTACTTAATGTCCTACTGGGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTG	360
DB	301 TAATGCACTACTTAATGTCCTACTGGGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTG	360
QY	361 GATAGATCAGCGCATAATGTTTAAATGCAAACTAACCTTTTACTATATATGTTGTTCT	420
DB	361 GATAGATCAGCGCATAATGTTTAAATGCAAACTAACCTTTTACTATATATGTTGTTCT	420
QY	421 CCTTAAGTGAAGCTCCTGGGCTTTAAGTTTCTGCTGCTGCTGCTGCTGCTGCTGCTG	480
DB	421 CCTTAAGTGAAGCTCCTGGGCTTTAAGTTTCTGCTGCTGCTGCTGCTGCTGCTGCTG	480
QY	481 GCTGCGGTACTAGTTAATGTTACCTTGGCAACTTAACAAAAACGATTCCTCCGCACT	540
DB	481 GCTGCGGTACTAGTTAATGTTACCTTGGCAACTTAACAAAAACGATTCCTCCGCACT	540

RESULT 2
AAA97037
ID AAA97037 standard; DNA; 2486 BP.
XX
AC AAA97037;
XX
DT 18-DEC-2000 (first entry)
XX
Nucleotide sequence encoding 48kD i-antigen.
DE
DE
KW Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine; ds;
KW white spot disease; freshwater fish; immune response; infection control.
XX
OS Ichthyophthirius multifiliis.
XX

PN WO200046373-A1.
 XX 10-AUG-2000.
 XX 04-FEB-2000; 2000WO-US02962.
 XX 04-FEB-1999; 99US-0118634.
 PR 02-MAR-1999; 99US-0122372.
 PR 17-MAR-1999; 99US-0124905.
 PR 27-APR-1999; 99US-0131121.
 XX (UYGE-) UNIV GEORGIA RES FOUND INC.
 PA (CORR) CORNELL RES FOUND INC.
 PA (CLARK/) CLARK T G.
 PA (DICK/) DICKERSON H W.
 PA (LINP/) LIN T.
 XX
 PI Clark TG, Dickerson HW, Lin T;
 XX
 XX WPI; 2000-506071/45.
 XX
 XX Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
 PT multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
 PT infection in fish
 XX
 PS Disclosure; Figure 1; 144pp; English.
 XX
 CC This invention relates to novel i-antigen polypeptide sequences.
 CC I-antigens or immobilisation antigens are common to a variety of
 CC hymenostomatid ciliates and their expression varies in response to
 CC environmental stimuli. This invention relates to i-antigens in
 CC Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
 CC of freshwater fish causing ichthyophthiriasis or white spot disease. The
 CC invention includes two polypeptide and polynucleotide sequences for two
 CC i-antigens of 48 and 55 kb. Also included in the invention are
 CC antibodies capable of binding to the nucleotide sequences and a method
 CC for identifying i. multifiliis serotypes using the nucleotide sequences.
 CC A composition (containing the i-antigen nucleotide) capable of eliciting
 CC an immune response in fish is useful for prophylaxis, treatment or for
 CC controlling i. multifiliis infection in fish. Polynucleotide or protein
 CC vaccines comprising a portion of the amplified product encoding an
 CC antigenic i-antigen polypeptide obtained is also useful for treating or
 CC preventing i. multifiliis infection in fish. Sequences AAA97036-A97042,
 CC and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
 CC fragments identified in the invention. Sequences AAA97043-A97064
 CC (excluding AAA97060) and AAA97071-A97088 represent primers used in the
 CC isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
 CC AAB25893-B25906 represent i-antigen protein and peptide sequences.
 XX
 SQ Sequence 2486 BP; 896 A; 310 C; 321 G; 959 T; 0 other;
 Query Match 100.0%; Score 1326; DB 21; Length 2486;
 Best Local Similarity 100.0%; Pred. No. 8.7e-298;
 Matches 1326; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 1 ATGAATAATATATTTTATTTTATTTTATTTTCTTTTATTTATTTATTTATTTATTTAGAGCT 60
 DB |||||||
 QY 433 ATGAATAATATATTTTATTTTATTTTATTTTCTTTTATTTATTTATTTATTTATTTAGAGCT 492
 DB |||||||
 QY 61 GTTCCATGTCCTGATGTTAGTACTCAAGTGGATGACTGATGTTAGGTGCTGCTGAT 120
 DB |||||||
 QY 493 GTTCCATGTCCTGATGTTAGTACTCAAGTGGATGACTGATGTTAGGTGCTGCTGAT 552
 DB |||||||
 QY 121 CTTGTACTTGTGTTAATGTCAGACCTAATTTTACTATAATGTTGGTGGCTGCTTAAGGA 180
 DB |||||||
 QY 553 CTTGTACTTGTGTTAATGTCAGACCTAATTTTACTATAATGTTGGTGGCTGCTTAAGGA 612
 DB |||||||
 QY 181 GAAGCTAATGTTAATTAACCTTTCCGACCAATAATGCTGTAGAGGTATATGTGTACCA 240
 DB |||||||
 QY 613 GAAGCTAATGTTAATTAACCTTTCCGACCAATAATGCTGTAGAGGTATATGTGTACCA 672
 DB |||||||
 QY 241 TGCCAAATAAACAGAGTAGGCTCTGTTACCAATGCAGGTAGCTACTTTAGCCACA 300
 DB |||||||

Db 673 TGCCAAATAAACAGAGTAGGCTCTGTTACCAATGCAGGTGACTTACGTACTTTAGCCACA 732
 QY 301 TAATGAGTACTTAATGTCCTACTGCGACTGCACCTTGATGATGGAGTGACAGATGTTTTT 360
 Db |||||||
 Db 733 TAATGAGTACTTAATGTCCTACTGCGACTGCACCTTGATGATGGAGTGACAGATGTTTTT 792
 QY 361 GATAGATCAGCGGCATTAATGTTAAATGCAACCTTAACCTTTACTATATAATGGTGGTCT 420
 Db |||||||
 Db 793 GATAGATCAGCGGCATTAATGTTAAATGCAACCTTAACCTTTACTATATAATGGTGGTCT 852
 QY 421 CCTAAGGTGAAGCTCCTGGGCTTTAAGCTTTTGGCTGGTGGCTGCGCTGCAGGTGTT 480
 Db |||||||
 Db 853 CCTAAGGTGAAGCTCCTGGGCTTTAAGCTTTTGGCTGGTGGCTGCGCTGCAGGTGTT 912
 QY 481 GCTGCCGTTACTAGTAAATGTTACCTTTGCCAATTAACCTTTGCCAATTAACCTTTGCCACT 540
 Db |||||||
 Db 913 GCTGCCGTTACTAGTAAATGTTACCTTTGCCAATTAACCTTTGCCAATTAACCTTTGCCACT 972
 QY 541 GCAGGTGCTTAAGCTAATTTAGCCACATTAATGACCAATTAATGTCCTACTGGCACTGTA 600
 Db |||||||
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 QY 601 CTTGATGATGGAGTGACACTTTGTTTTTAATACATCAGGCACATTAATGTTAAATGCGAGA 660
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 Db |||||||
 Db 1093 CCTAATCTTTACTAATGTTGGTTCCTTTAAGGTGAAGCTCCTGGCGTTTAAAGTTTTT 1152
 QY 721 GCTGCTGGTGGTGGCGTGCGAGGTGTTGCTGCCGTTACTAGTTAATGTTACCTTTGCCAA 780
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 Db 1153 GCTGCTGGTGGTGGCGTGCGAGGTGTTGCTGCCGTTACTAGTTAATGTTACCTTTGCCAA 1212
 QY 781 ATAACAAAACGATTTCTCTGCCACTGCGAGTGCCTAAGCTAATTTAGCCACATTAATGC 840
 Db |||||||
 Db 1213 ATAACAAAACGATTTCTCTGCCACTGCGAGTGCCTAAGCTAATTTAGCCACATTAATGC 1272
 QY 841 AGTACTTTAATGTCACACTGGCAGTGCCTAATTTCAAGCAGGTGACACTTGTGTTTAGTAAT 900
 Db |||||||
 Db 1273 AGTACTTTAATGTCACACTGGCAGTGCCTAATTTCAAGCAGGTGACACTTGTGTTTAGTAAT 1332
 QY 901 TCATCCACATTAATGTTCTTAAATGCTAATTTACTAATTTTAAATGCTAATTTTTCGAAGCA 960
 Db |||||||
 Db 1333 TCATCCACATTAATGTTCTTAAATGCTAATTTACTAATTTTAAATGCTAATTTTTCGAAGCA 1392
 QY 961 GGTAAAAGTTAATGTTTAAAGTGTCCAGTAAAGTAAACTACTCCAGCAGCATGCTCCAGGT 1020
 Db |||||||
 Db 1393 GGTAAAAGTTAATGTTTAAAGTGTCCAGTAAAGTAAACTACTCCAGCAGCATGCTCCAGGT 1452
 QY 1021 AATACTGCTACTTAAGCCACATAATGTTGACACATGTCCTGCTGTTAGACTTTGAT 1080
 Db |||||||
 Db 1453 AATACTGCTACTTAAGCCACATAATGTTGACACATGTCCTGCTGTTAGACTTTGAT 1512
 QY 1081 GATGGAACATCAACTAATTTTGTAGCTTCGCAACTCAATGTAATACTTCTGCTGGC 1140
 Db |||||||
 Db 1513 GATGGAACATCAACTAATTTTGTAGCTTCGCAACTCAATGTAATACTTCTGCTGGC 1572
 QY 1141 TTTTTCGATCAAAACAACTGGTTTTTACAGCAGGTACTGATACATGACTGATGTTACT 1200
 Db |||||||
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 Db |||||||
 Db 1693 TGCGCTCCACTACTTTTCGCTAAATTTTATCGATTTCCCTTATTATTATTTCTTCTAT 1320
 QY 1321 TTATTG 1326
 Db |||||||
 Db 1753 TTATTG 1758

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RESULT 3
AAA52135
ID AAA52135 standard; DNA; 1326 BP.
XX
XX AAA52135;
AC
XX
XX 04-DEC-2000 (first entry)
XX
XX 48 kDa i-antigen gene.
XX
XX BTul; beta-tubulin; protein expression system; negative selection;
KW pacitaxel sensitivity; cell surface; antigen; protozoa; ciliate;
KW live vaccine; Ichthyophthius multifiliis; immobilization-antigen;
KW i-antigen; freshwater; fish; protozoa; ds.
XX
XX Ichthyophthius multifiliis.
OS
XX
XX Key Location/Qualifiers
XX CDS 1..1326
XX
XX /*tag= a
XX /transl_except= "pos:82..84, aa:Gln"
XX /codon= (seq:"TAA", aa:Gln)
XX /product= 48_kDa_i-antigen
XX /partial
XX
XX W0200046381-A1.
XX
XX 10-AUG-2000.
XX
XX 04-FEB-2000; 2000HO-US02966.
XX
XX 04-FEB-1999; 99US-0118634.
XX 02-MAR-1999; 99US-0122372.
XX 17-MAR-1999; 99US-0124905.
XX 27-APR-1999; 99US-0131121.
XX
XX (UYGE-) UNIV GEORGIA RES FOUND INC.
XX (GAER/) GAERTIG J.
XX (DICK/) DICKERSON H W.
XX (CLAR/) CLARK T G.
XX
XX Gaertig J, Dickerson HW, Clark TG;
XX
XX WPI; 2000-514962/46.
XX P-PSDB; AAY971176.
XX
XX Recombinant expression systems for expressing heterologous nucleic
XX acids and producing recombinant protein, comprises nonpathogenic
XX protozoa such as Tetrahymena resistant to paclitaxel
XX
XX Disclosure; Fig 3B; 83pp; English.
XX
XX Tetrahymena thermophila expresses two major beta-tubulin genes (BTul and
XX BTu2), which encode identical beta-tubulin proteins. Either of these two
XX genes (but not both at once) can be disrupted without a detectable change
XX in the cell phenotype. A K350L substitution in the BTul beta-tubulin
XX protein confers increased resistance to microtubule-depolymerizing drugs
XX and increased sensitivity to paclitaxel, a microtubule-stabilizing drug.
XX Cells carrying the BTul-1K350M allele can be transformed to paclitaxel
XX resistance by gene replacement of BTul-1K350M with a wild-type BTul gene
XX fragment, eliminating the need to incorporate a means for positive
XX selection. Where the host organism is not a T. thermophila mutant
XX containing the BTul-1K350M allele, BTul::neol construct, which
XX substitutes the coding region of the neol gene (conferring resistance to
XX paromycin) for that of BTul, can be used to generate BTul gene knockouts
XX and for positive selection. Heterologous nucleic acids (especially
XX encoding antigenic polypeptides) can be inserted into a BTul gene for
XX successful cell-surface expression that is maintained by way of negative
XX selection. Preferred expression vectors disrupt the BTul-1K350M gene by
XX homologous recombination-mediated insertion of a heterologous nucleic
XX acid, thereby restoring resistance to paclitaxel in the resulting

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CC transgenic host. Transgenic ciliated protozoa are useful as live vaccines
CC for stimulating an immune response in a vertebrate. The transgenic
CC protozoan host cells are also useful for producing polyclonal antibodies
CC (claimed). In particular, Tetrahymena expressing Ichthyophthius
CC multifiliis immobilization-antigen (i-antigen) protein on their surface
CC are effective vehicles for vaccination of freshwater fish against
CC infection by I. multifiliis.
XX
XX Sequence 1326 BP; 371 A; 252 C; 252 G; 451 T; 0 other;
SQ
Query Match 99.9%; Score 1324.4; DB 21; Length 1326;
Best Local Similarity 99.9%; Pred. No. 1.7e-297;
Matches 1325; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
QY 1 ATGAAATATATATATTTTAAATTTTAAATTTTCTTTTAAATTAATTAATTAATTAAGAGCT 60
DB 1 ATGAAATATATATATTTTAAATTTTAAATTTTCTTTTAAATTAATTAATTAATTAAGAGCT 60
QY 61 GTTCCATGTCCTGATGATGATGATGATGATGATGATGATGATGATGATGATGATGATGAT 120
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QY 301 TAATGCAGTACTTAATGTCCTTACTGGCAGTGCCTTGCATGATGAGTGACAGATGTTTTT 360
DB 301 TAATGCAGTACTTAATGTCCTTACTGGCAGTGCCTTGCATGATGAGTGACAGATGTTTTT 360
QY 361 GATAGTCAGCGGCATATATGTTAAATGCAAACTAACTTTTACTATATATGTTGTTGTTCT 420
DB 361 GATAGTCAGCGGCATATATGTTAAATGCAAACTAACTTTTACTATATATGTTGTTGTTCT 420
QY 421 CCTTAAGGTGAAGTCTCTGGCGTTTAAAGTTTTCGTGCTGCTGCTGCTGCTGCTGCTGCT 480
DB 421 CCTTAAGGTGAAGTCTCTGGCGTTTAAAGTTTTCGTGCTGCTGCTGCTGCTGCTGCTGCT 480
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DB 481 GCTGCGGTTTACTAGTTAATGTTGTTGTTGTTGTTGTTGTTGTTGTTGTTGTTGTTGTT 540
QY 541 GCAGTGCTTAAAGCTTAATTTAGCCACATAATGTTAGCAATTAATGTTGTTGTTGTTGTTA 600
DB 541 GCAGTGCTTAAAGCTTAATTTAGCCACATAATGTTAGCAATTAATGTTGTTGTTGTTA 600
QY 601 CTTGATGATGAGTGACACACTTGTGTTTAAATACATCAGCCACATTAATGTTAAATGCGA 660
DB 601 CTTGATGATGAGTGACACACTTGTGTTTAAATACATCAGCCACATTAATGTTAAATGCGA 660
QY 661 CCTAAGCTTTTACTATAATGTTGTTGTTGTTGTTGTTGTTGTTGTTGTTGTTGTTGTT 720
DB 661 CCTAAGCTTTTACTATAATGTTGTTGTTGTTGTTGTTGTTGTTGTTGTTGTTGTTGTT 720
QY 721 GCTGCTGTTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 780
DB 721 GCTGCTGTTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 780
QY 781 ATAACAAAAAGGATTCCTGCGCACTGCAGTGCCTAAGCTAATTTAGCCACATAATGC 840
DB 781 ATAACAAAAAGGATTCCTGCGCACTGCAGTGCCTAAGCTAATTTAGCCACATAATGC 840
QY 841 AGTACTTAAATGTCACACTGGCACTGCAATTTCAAGCGGAGTGACACTTGTGTTTGTAGTA 900
DB 841 AGTACTTAAATGTCACACTGGCACTGCAATTTCAAGCGGAGTGACACTTGTGTTTGTAGTA 900

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us-09-497-967-1.l.rng

QY 362 ATAGATCAGCCGATAATGTGTTAAATGCAAACTTAACCTTTTACTATAATGGTGGTTCTC 421
DB 1358 ATAGATCAGCCGATAATGTGTTAAATGCAAACTTAACCTTTTACTATAATGGTGGTTCTC 1417
QY 422 CTTAAGGTGAAGCTCCTGGCGTTTAAAGTTTGTGCTGGTGGTGGCGCTGCAGGGTTG 481
DB 1418 CTTAAGGTGAAGCTCCTGGCGTTTAAAGTTTGTGCTGGTGGTGGCGCTGCAGGGTTG 1477
QY 482 CTGCGCTTACTAGTAAATGTGTACCTGCCAATTAACAAAAGCAATTCCTGCCACTG 541
DB 1478 CTGCGCTTACTAGTAAATGTGTACCTGCCAATTAACAAAAGCAATTCCTGCCACTG 1537
QY 542 CAGTGCCTTAAGCTAATTTAGCCACATAATGTAGCAATTAATGTCCCTACTGGCACTGTAC 601
DB 1538 CAGTGCCTTAAGCTAATTTAGCCACATAATGTAGCAATTAATGTCCCTACTGGCACTGTAC 1597
QY 602 TTGATGATGAGTGACACTGTGTTTAAATACATGACCCACATAATGTGTTAAATGCGACAG 661
DB 1598 TTGATGATGAGTGACACTGTGTTTAAATACATGACCCACATAATGTGTTAAATGCGACAG 1657
QY 662 CTAACTTTTACTATAATGTGTTTCTCTTAAGGTGAAGCTCCTGGCGTTTAAAGTTTGTG 721
DB 1658 CTAACTTTTACTATAATGTGTTTCTCTTAAGGTGAAGCTCCTGGCGTTTAAAGTTTGTG 1717
QY 722 CTGCTGGTGTGCGCTGCAGGTGTTGCTGCGTTTACTAGTTAAATGTGTAACCTTGGCAAA 781
DB 1718 CTGCTGGTGTGCGCTGCAGGTGTTGCTGCGTTTACTAGTTAAATGTGTAACCTTGGCAAA 1777
QY 782 TAAACAAAACGATCTCTCGCTGCTGCACTGCGAGTGCCTAGCTAAATTTAGCCACATAATGCA 841
DB 1778 TAAACAAAACGATCTCTCGCTGCTGCACTGCGAGTGCCTAGCTAAATTTAGCCACATAATGCA 1837
QY 842 GTACTTAATGTCACACTGCGCACTGCAATTCAGACGGAGTGCACCTGTTTGTAGTAAAT 901
DB 1838 GTACTTAATGTCACACTGCGCACTGCAATTCAGACGGAGTGCACCTGTTTGTAGTAAAT 1897
QY 902 CATCCACATAATGTTCTTAAATGCAATGCTAAATACCTTTTAAATGGTAATTCGAAGCAG 961
DB 1898 CATCCACATAATGTTCTTAAATGCAATGCTAAATACCTTTTAAATGGTAATTCGAAGCAG 1957
QY 962 GTAAAGTTTAAATGTTTAAAGTGTCCAGTAAGTAAACTACTCCAGCACATGCTCCAGGTA 1021
DB 1958 GTAAAGTTTAAATGTTTAAAGTGTCCAGTAAGTAAACTACTCCAGCACATGCTCCAGGTA 2017
QY 1022 ATACTGCTACTTAAGCCACATAATGTTTGACCCACATGCTCCTGCTGCTACAGTACTGATG 1081
DB 2018 ATACTGCTACTTAAGCCACATAATGTTTGACCCACATGCTCCTGCTGCTACAGTACTGATG 2077
QY 1082 ATGAACATCAACTAATTTTGTAGCTTCCGCACTGAATGTACTAAATGTTTCTGCTGGCT 1141
DB 2078 ATGAACATCAACTAATTTTGTAGCTTCCGCACTGAATGTACTAAATGTTTCTGCTGGCT 2137
QY 1142 TTTTTCATCAAAAACAACTGGTTTACAGCAGGTACTGATACATGCTACTGAATGACTA 1201
DB 2138 TTTTTCATCAAAAACAACTGGTTTACAGCAGGTACTGATACATGCTACTGAATGACTA 2197
QY 1202 AAAAATTAACCTTGTGGCCACAGCTAAAGTATATGCTGAAGCTACTCAAAAAGTATAAT 1261
DB 2198 AAAAATTAACCTTGTGGCCACAGCTAAAGTATATGCTGAAGCTACTCAAAAAGTATAAT 2257
QY 1262 GCGCTCCACTACTTTCGCTAAATTTTATCGATTTTCCCTTATTTATTTTCTTCTTATT 1321
DB 2258 GCGCTCCACTACTTTCGCTAAATTTTATCGATTTTCCCTTATTTATTTTCTTCTTATT 2317
QY 1322 TATTG 1326
DB 2318 TATTG 2322
RESULT 5
AAA52136
ID AAA52136 standard; DNA; 1404 BP.
XX

AC AAA52136;
XX 04-DEC-2000 (first entry)
XX 55 kDa i-antigen gene.
XX BTU1; beta-tubulin; protein expression system; negative selection;
KW pacilitaxel sensitivity; cell surface; antigen; protozoa; ciliate;
KW live vaccine; Ichthyophthius multifiliis; immobilization-antigen;
KW i-antigen; freshwater; fish; protozoacide; ds.
XX Ichthyophthius multifiliis.
XX Key Location/Qualifiers
FH 1..1404
FT /*tag= a
FT /codon= (seq: "TAA", aa:Gln)
FT /product= 55_kDa_i-antigen
FT /partial
XX WO200046381-A1.
XX 10-AUG-2000.
XX 04-FEB-2000; 2000WO-US02966.
XX 04-FEB-1999; 99US-0118634.
XX 02-MAR-1999; 99US-0122372.
XX 17-MAR-1999; 99US-0124905.
XX 27-APR-1999; 99US-0131121.
XX (UYGE-) UNIV GEORGIA RES FOUND INC.
XX (GAER/) GAERTIG J.
XX (DICK/) DICKERSON H W.
XX (CLAR/) CLARK T G.
XX Gaertig J, Dickerson HW, Clark TG;
XX WPI; 2000-514962/46.
XX P-PSDB; AAY97177.
XX Recombinant expression systems for expressing heterologous nucleic
XX acids and producing recombinant protein, comprises nonpathogenic
XX protozoa such as Tetrahymena resistant to paclitaxel
XX Disclosure; Fig 3B; 83pp; English.
XX Tetrahymena thermophila expresses two major beta-tubulin genes (BTU1 and
XX BTU2), which encode identical beta-tubulin proteins. Either of these two
XX genes (but not both at once) can be disrupted without a detectable change
XX in the cell phenotype. A K350L substitution in the BTU1 beta-tubulin
XX protein confers increased resistance to microtubule-depolymerizing drugs
XX and increased sensitivity to paclitaxel, a microtubule-stabilizing drug.
XX Cells carrying the Btu1-IK350M allele can be transformed to paclitaxel
XX resistance by gene replacement of Btu1-IK350M with a wild-type BTU1 gene
XX fragment, eliminating the need to incorporate a means for positive
XX selection. Where the host organism is not a T. thermophila mutant
XX containing the Btu1-IK350M allele, BTU1::neol construct, which
XX substitutes the coding region of the neol gene (conferring resistance to
XX paromycin) for that of Btu1, can be used to generate BTU1 gene knockouts
XX and for positive selection. Heterologous nucleic acids (especially
XX encoding antigenic polypeptides) can be inserted into a Btu gene for
XX successful cell-surface expression that is maintained by way of negative
XX selection. Preferred expression vectors disrupt the Btu1-IK350M gene by
XX homologous recombination-mediated insertion of a heterologous nucleic
XX acid, thereby restoring resistance to paclitaxel in the resulting
XX transgenic host. Transgenic ciliated protozoa are useful as live vaccines
XX for stimulating an immune response in a vertebrate. The transgenic
XX protozoan host cells are also useful for producing polyclonal antibodies
XX (claimed). In particular, Tetrahymena expressing Ichthyophthius
XX multifiliis immobilization-antigen (i-antigen) protein on their surface
XX are effective vehicles for vaccination of freshwater fish against
XX infection by I. multifiliis.

XX	Sequence	1404 BP; 447 A; 241 C; 256 G; 460 T; 0 other;	
5Q	Query Match	19.28; Score 254.2; DB 21; Length 1404;	
	Best Local Similarity	56.7%; Pred. No. 2.7e-49;	
	Matches 661; Conservative	0; Mismatches 393; Indels 111; Gaps 6;	
QY	167	GTGCTGCTTAAGGAGAGCTAATGGTAATTAACCTTTCCGACGCAAAATAATGCTGCTAGAG	226
DB	344	GTGTTAATGTGAGATAATTTTATTAATGAAATGCTCCAAATTTTAATGCGAGGTGCTA	403
QY	227	GTATATGTGACCAATGAATTAACAGAGTAGGCTCTGTTACCAATGACGAGCTAG	286
DB	404	GTACATGCACAGCTGTCCGGTAAACAGAGTTGGTGTGCATTGACTGCTGGTAATGCCG	463
QY	287	CTACTTTAGCCACATGAATGAGTACTTAATGTCTCTACTGCGCACTGCGATGATGGAG	346
DB	464	CTACCATAGTGCATATGTAACGTCCCATGTCTCTACTGCTACTGCACTTGGATGGAG	523
QY	347	TGACAGATGTTTTGTAGATCAGCCGCATTAATGTGTTAAATGCAACCTTAACCTTTTACT	406
DB	524	TAACCTACTGATTAATGTAGATCATTCACAGAATGTGTTAAATGTAGACTTAACCTTTACT	583
QY	407	ATAATGCTGCTTCCTTAAGTGAAGCTCCTGGCGTTTAAGTTTGTGCTGGTGGTG	466
DB	584	ATAATGTAATAATGTAATGTAATGTAATGTAATGTAATGTAATGTAATGTAATGTAAT	643
QY	467	CCGCTGCAGGTGTGCTGCGCTTACTAGTTAATGTGTACTTCCCACTAACCAAAACG	526
DB	644	CCGCAATTAACCTGCT-----AATG	664
QY	527	ATTCTCTGCGACTGCGAGTGCCCTAAGCTAATTTAGCCACATTAATGTAGCAATTAATGTC	586
DB	665	TTGCTTAAGCTACTTTAAGTAATGATGCTACATAACCGCATTAATGTAAGCTTGCATGCC	724
QY	587	CTACTGCGACTGCTACTGATGAGTGACACTTGTGTTTAAATACATGACGCCAATAT	646
DB	725	CTGATGCTACTATAAGTGTGCTGGAGT---AAATAATTTGGTGGTGGTGGTGGTGGT	781
QY	647	GTGTTAATGACAGACTTAATGCTGCTTACTATAATGCTGCTTCTCTTAAGTGAAGCTCCTG	706
DB	782	GCTACTAATGCTCTCACTTTACATTAATGCTGCTAAT-----	826
QY	707	CGGTTTAAGTTTTGTGCTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGT	766
DB	827	-----TCAATCCAGGTAAATGATACAT	847
QY	767	GTGCTACTTCCCAATAAACAACGATTCCTCT---GCCACTGAGGTGCTTAAGCTA	823
DB	848	GCCTACTTCCCGACCAATAAAGATTAATGCTGCTGAAGCCACTGCGAGGTGGTGGTGGT	907
QY	824	ATTTAGCCACATAATGACGACTTAATGTCCAACTGCGCACTCAATTTCAAGACGGAGTCA	883
DB	908	CTTTAGCCAAATAATGTAATTTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT	967
QY	884	CACCTGTTTTAGTAATTCATCCACATAATGTTCTTAATGCAATGCTAATTTACTTTT	943
DB	968	CTAATTAATGTAATTTATAACAGAGATGCTAAATGCTGCTAACTTTTATTTTATGATG	1027
QY	944	ATGGTAATTTGGAAGCAGGTAAAGTTAATGTTAAAGTGTCCAGTAAGTAAACT---A	1000
DB	1028	GTAATTAATTTAGGAGGAGTAGTAGATGCAAGCATGTCCAGCAATAAAGTTTAAG	1087
QY	1001	CTCCAGCATGCTCCAGCTAATGCTACTTAAAGCCCAATAATGTTTGGACCATGTC	1060
DB	1088	CGCCTGTAGCAACTGCGAGTGTGCTACTTAAATTCATTAATGTCGCCCTTGAATGCC	1147
QY	1061	CTGCTGGTACGACTGTGATGATGGAACATCAACTAATTTTGTAGCTTCCGCAACTGAT	1120
DB	1148	CTGCTGGTACTGCTACTCAGCGATGGAACAACATCTACTTATAAATGAAGCAGCATCTGAT	1207
QY	1121	GTACTAAATGTTCTGCTGCTTTTGTGCATCAAAACAACTGGTTTACAGCAGGTACTG	1180

DB	1208	GTGTTAAATGCTGCTGCAACTTTTATATACAAAATAAACTGATGGGTAGCAGGTATG	1267
QY	1181	ATACATGTACTGAATGTACTATAAAAAATTAACCTTCTGGTCCACAGCTAAAGTATATGCTG	1240
DB	1268	ATACATGTACTAGTTGTAATAAAAAATTAACCTTCTGGCGCTGAAGCTAATTTACCTGAAT	1327
QY	1241	AAGCTACTCAAAAGTATAATGCGCTCCACTACTTTCCCTAAATTTTATCGATTTCTT	1300
DB	1328	CTGCTAAAAAATAATATAATG-----TGAATTCGCTAATTTTATCAATTTCTT	1378
QY	1301	TATTTATTTATTTCTTTCTATTTATT	1325
DB	1379	TATTTATTTATTTCTTTATTTATT	1403
RESULT 6			
AAA97038			
ID	AAA97038	standard; DNA; 1404 BP.	
XX	AC	AAA97038;	
XX	AC	AAA97038;	
DT	18-DEC-2000	(first entry)	
XX	55kD	i-antigen nucleotide sequence.	
DE			
XX			
KW		Immobilisation antigen; i-antigen; Ichthyophthiriasis; vaccine; ds;	
KW		white spot disease; freshwater fish; immune response; infection control.	
XX			
OS		Ichthyophthirius multifiliis.	
XX			
PN	WO200046373-A1.		
PD			
XX	10-AUG-2000.		
PF	04-FEB-2000; 2000WO-US02962.		
XX			
PR	04-FEB-1999; 99US-0118634.		
PR	02-MAR-1999; 99US-0123372.		
PR	17-MAR-1999; 99US-0124905.		
PR	27-APR-1999; 99US-0131121.		
XX			
PA	(UYGE-) UNIV GEORGIA RES FOUND INC.		
PA	(CORR) CORNELL RES FOUND INC.		
PA	(CLAR/) CLARK T. G.		
PA	(DICK/) DICKERSON H. W.		
PA	(LINT/) LIN T.		
XX			
PI	Clark TG, Dickerson HW, Lin T;		
XX			
DR	WPI; 2000-506071/45.		
XX			
PT	Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius		
PT	multifiliis, useful for prophylaxis and treatment of Ichthyophthirius		
PT	infection in fish		
XX			
PS	Claim 5; Figure 3; 144pp; English.		
XX			
CC	This invention relates to novel i-antigen polypeptide sequences.		
CC	I-antigens or immobilisation antigens are common to a variety of		
CC	hymenostomatid ciliates and their expression varies in response to		
CC	environmental stimuli. This invention relates to i-antigens in		
CC	Ichthyophthirius multifiliis, a protozoan which is an obligate parasite		
CC	of freshwater fish causing ichthyophthiriasis or white spot disease. The		
CC	invention includes two polypeptide and polynucleotide sequences for two		
CC	i-antigens, of 48 and 55 kD. Also included in the invention are		
CC	antibodies capable of binding to the nucleotide sequences and a method		
CC	for identifying I. multifiliis serotypes using the nucleotide sequences.		
CC	A composition (containing the i-antigen nucleotide) capable of eliciting		
CC	an immune response in fish is useful for prophylaxis, treatment or for		
CC	controlling I. multifiliis infection in fish. Polynucleotide or protein		
CC	vaccines comprising a portion of the amplified product encoding an		
CC	antigenic i-antigen polypeptide obtained is also useful for treating or		
CC	preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,		

an immune response in fish is useful for prophylaxis, treatment or for controlling *I. multifiliis* infection in fish. Polynucleotide or protein vaccines comprising a portion of the amplified product encoding an antigenic i-antigen polypeptide obtained is also useful for treating or preventing *I. multifiliis* infection in fish. Sequences AA97036-A97042, and AA97060, AA97065 and AA97089 represent i-antigen genes and gene fragments identified in the invention. Sequences AA97043-A97064 (excluding AA97060) and AA97071-A97088 represent primers used in the isolation of the i-antigen gene sequences. Sequences AA92589-B25889 and AA925893-B25906 represent i-antigen protein and peptide sequences.

SQ Sequence 1410 BP; 449 A; 240 C; 259 G; 462 T; 0 other;

Query Match 19.0%; Score 252.6; DB 21; Length 1410;
Best Local Similarity 56.7%; Pred. No. 6.4e-49;
Matches 660; Conservative 0; Mismatches 394; Indels 111. Gaps 6.

QY	167	GTGCTGCTTAAAGGAGAAGCTAATGGTAATTAACCTTTCCGACGAAATAATAGCTGCTAGAG	226
Db	344	GGTGTAAATGTAGAAATTAATTTTATATGAAATGCTCCAAATTTTAAATGACGGTGCTA	403
QY	227	GTATATGTGTACCAATGCCAAATAAACAGAGTAGCCTGTGTACCAATGCAGGTGACTTAG	286
Db	404	GTACATGCACAGCTGTCCGGTAAACAGAGTTGGTGGTCATTGACTGCTGGTGAATGCGG	463
QY	287	CTACTTTAGCCACATAATGCAAGTACTTAATGTCTCTACTGGCACTGCACCTTGATGATGGAG	346
Db	464	CTACCATAGTCGCATATGTAACGTCGATGTCTACTGTACTGCACCTTGATGATGGAG	523
QY	347	TGACAGATGTTTTTGTATAGATCAGCCGCCATTAATGTGTTAAATGCCAACCTAACTTTTACT	406
Db	524	TAACTACTGATTAATGTTAGATCATTCACAGAAATGTGTTAAATGTAGACTTAACCTTTTACT	583
QY	407	ATAATGTGGTGTCTCCTTAAGGTGAAGCTCCTCGCGCTTTAAGTTTGTCTGCTGGTGCTG	466
Db	584	ATAATGTAAATAATGGTAATACTCCTTTTCAATCCAGGTAAAGTTAATGCCACACCTTGTG	643
QY	467	CCGCTGCAGGTGTGTCTGCGGTCTACTAGTTTAATGTGTACTCTTGCCAACTAAACAAAAGG	526
Db	644	CGGCAATTAACCTGTCT-----AATGCT-----AATG	664
QY	527	ATTCTCTCGCACTGCAGGTGCCTAAAGCTAATTTAGCCACATAAGTGTACGAATTAATGTC	586
Db	665	TTGCTTAAGCTACTTTTAGGTAATGCTGTACATAACCCGCAATAGTAAAGTTGGATGCC	724
QY	587	CTACTGCACTGTACTTGATGATGGAGTGACACTTGTGTTTTAATACATCAGCCACATTAAT	646
Db	725	CTGATGGTACTATAAGTGTGCTGGAGT---AAATAAATTTGGGTAGCACAAAAACACTGAAT	781
QY	647	GTGTTAAATGCAGACCTTAACCTTTTACTATAATGGTGGTCTCCTTTAAGGTGAAGTCTCTG	706
Db	782	GTACTAATGTGCTCTCACTTTTACATTAATATGCTCCTTAAT-----826	
QY	707	CGGTTTAAAGTTTTTGTGTGTGTGCTGCGCTGCAGGTGTGCTCGGCTTACTAGTTAAT	766
Db	827	-----TCAATCCAGGTAATAGTACAT	847
QY	767	GTGTACTTGGCCAAATAAACAAAACGATTCTCCT---GCCACTGCAGGTGCCTAAGCTA	823
Db	848	GCCTACTTGGCCGAGCAATAAAGATTATGGTGTGTAAGCCACTGCAGGTGGTGGCGCTA	907
QY	824	ATTTAGCCACATAATGCAGTACTTAATGTCCAACTGGCACTGCAATTCACAGCAGGATGA	883
Db	908	CTTTAGCCAAATAATGTAATATTGCAATGCCCTGATGGTACTGCAATTCCTAGTGGAGCAA	967
QY	884	CAGTCTGTTTTAGTAATTCATCCACATAATGTCTTTAATGCAATTCCTAATTTACTTTTTTA	943
Db	968	CTAATTATGTAATATATAAACAGAAATGCTAAATTTGCTGCTAATTTTTTATTTTGATG	1027
QY	944	ATGGTAATTTTGAAGCAGCTAAAGCTTAATGTTTAAAGTGTCCAGTAAGTAAACT---A	1000
Db	1028	GTAATAATTTCTAGCGAAGACTAGTAGTCAAAAGCATGTCACAGCAAAATAAGGTTTAAAG	1087


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XX DR WPI; 2000-506071/45.
XX PA Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
XX PT multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
XX PT infection in fish
XX PS Disclosure; Figure 7; 144pp; English.
XX CC This invention relates to novel i-antigen polypeptide sequences.
XX CC I-antigens or immobilisation antigens are common to a variety of
XX CC hymenostomatid ciliates and their expression varies in response to
XX CC environmental stimuli. This invention relates to i-antigens in
XX CC Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
XX CC of freshwater fish causing ichthyophthiriasis or white spot disease. The
XX CC invention includes two polypeptide and polynucleotide sequences for two
XX CC i-antigens, of 48 and 55 kD. Also included in the invention are
XX CC antibodies capable of binding to the nucleotide sequences and a method
XX CC for identifying I. multifiliis using the nucleotide sequences.
XX CC A composition (containing the i-antigen nucleotide) capable of eliciting
XX CC an immune response in fish is useful for prophylaxis, treatment or for
XX CC controlling I. multifiliis infection in fish. Polynucleotide or protein
XX CC vaccines comprising a portion of the amplified product encoding an
XX CC antigenic i-antigen polypeptide obtained in fish. Sequences AAA97036-A97042,
XX CC and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
XX CC fragments identified in the invention. Sequences AAA97043-A97064
XX CC (excluding AAA97060) and AAA97071-A97088 represent primers used in the
XX CC isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
XX CC AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX CC Sequences AAA97066-A97070 and AAB25890-B25892 represent i-antigen
XX CC sequences from Giardia lamblia used in the identification of the I.
XX CC multifiliis i-antigen sequences of the invention.
XX SQ Sequence 162 BP; 54 A; 19 C; 14 G; 75 T; 0 other;

Query Match 7.5%; Score 99; DB 21; Length 162;
Best Local Similarity 100.0%; Pred. No. 1.4e-13;
Matches 99; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1228 AAAGTATATGCTGCAAGCTACTCAAAAGATATATGCGCTCCACTACTTCGCTAAATTT 1287
DB 1 AAAGTATATGCTGCAAGCTACTCAAAAGATATATGCGCTCCACTACTTCGCTAAATTT 60

QY 1288 TTATCGATTTCCTTATTATTATTTCTTCTATTATTG 1326
DB 61 TTATCGATTTCCTTATTATTATTATTTCTTCTATTATTG 99

RESULT 11
AAA97068
ID AAA97068 standard; cDNA; 199 BP.
XX AC AAA97068;
XX DT 18-DEC-2000 (first entry)
XX DE 48kd i-antigen RACE amplification product.
XX KW Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine; ds;
XX KW white spot disease; freshwater fish; immune response; infection control.
XX OS Giardia lamblia.
XX PN WO200046373-A1.
XX PD 10-AUG-2000.
XX PF 04-FEB-2000; 2000WO-US02962.
XX PR 04-FEB-1999; 99US-0118634.
XX PR 02-MAR-1999; 99US-0122372.
XX PR 17-MAR-1999; 99US-0124905.

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PR 27-APR-1999; 99US-0131121.
XX (UYGE-) UNIV GEORGIA RES FOUND INC.
XX PA (CORR ) CORNELL RES FOUND INC.
XX PA (CLAR/) CLARK T G.
XX PA (DICK/) DICKERSON H W.
XX PA (LINT/) LIN T.
XX PI Clark TG, Dickerson HW, Lin T;
XX WPI; 2000-506071/45.
XX Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
XX PT multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
XX PT infection in fish
XX PS Disclosure; Figure 7; 144pp; English.
XX CC This invention relates to novel i-antigen polypeptide sequences.
XX CC I-antigens or immobilisation antigens are common to a variety of
XX CC hymenostomatid ciliates and their expression varies in response to
XX CC environmental stimuli. This invention relates to i-antigens in
XX CC Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
XX CC of freshwater fish causing ichthyophthiriasis or white spot disease. The
XX CC invention includes two polypeptide and polynucleotide sequences for two
XX CC i-antigens, of 48 and 55 kD. Also included in the invention are
XX CC antibodies capable of binding to the nucleotide sequences and a method
XX CC for identifying I. multifiliis serotypes using the nucleotide sequences.
XX CC A composition (containing the i-antigen nucleotide) capable of eliciting
XX CC an immune response in fish is useful for prophylaxis, treatment or for
XX CC controlling I. multifiliis infection in fish. Polynucleotide or protein
XX CC vaccines comprising a portion of the amplified product encoding an
XX CC antigenic i-antigen polypeptide obtained in fish. Sequences AAA97036-A97042,
XX CC and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
XX CC fragments identified in the invention. Sequences AAA97043-A97064
XX CC (excluding AAA97060) and AAA97071-A97088 represent primers used in the
XX CC isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
XX CC AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX CC Sequences AAA97066-A97070 and AAB25890-B25892 represent i-antigen
XX CC sequences from Giardia lamblia used in the identification of the I.
XX CC multifiliis i-antigen sequences of the invention.
XX SQ Sequence 199 BP; 83 A; 19 C; 13 G; 84 T; 0 other;

Query Match 7.5%; Score 99; DB 21; Length 199;
Best Local Similarity 100.0%; Pred. No. 1.4e-13;
Matches 99; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1228 AAAGTATATGCTGCAAGCTACTCAAAAGATATATGCGCTCCACTACTTCGCTAAATTT 1287
DB 1 AAAGTATATGCTGCAAGCTACTCAAAAGATATATGCGCTCCACTACTTCGCTAAATTT 60

QY 1288 TTATCGATTTCCTTATTATTATTATTTCTTCTATTATTG 1326
DB 61 TTATCGATTTCCTTATTATTATTATTTCTTCTATTATTG 99

RESULT 12
AAA97067
ID AAA97067 standard; DNA; 202 BP.
XX AC AAA97067;
XX DT 18-DEC-2000 (first entry)
XX DE 48kd i-antigen gene sequence.
XX KW Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine; ds;
XX KW white spot disease; freshwater fish; immune response; infection control.
XX OS Giardia lamblia.
XX PN
XX PD
XX PF
XX PR
XX PR
XX PR

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[illegible]

